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PATENT APPLICATION  
Mo-6879  
LeA 33,977

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION OF )  
HOLGER WARTH ET AL ) GROUP NO.: 1771  
SERIAL NUMBER: 10/080,300 ) EXAMINER: VICTOR S. CHANG  
FILED: FEBRUARY 21, 2002 )  
TITLE: POLYCARBONATE )  
COMPOSITIONS WITH )  
IMPROVED FOAM ADHESION )

LETTER

Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Enclosed herewith are three copies of an Appeal Brief in the matter of the subject Appeal. Please charge the fee for filing the Brief, \$330.00, to our Deposit Account Number 13-3848.

Respectfully submitted

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Alexandria, VA 22313-1450 6/01/04

Date  
James R. Franks, Reg. No. 42,552  
Name of applicant, assignee or Registered Representative

James R. Franks  
Signature

June 1, 2004  
Date



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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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**APPEAL BRIEF**

Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Brief, submitted in triplicate, is an appeal from the Final Office Action of the Examiner dated January 7, 2004 in which the rejections of Claims 1, 2, 4-23 and 24 were maintained, and added Claims 26 and 27 were finally rejected.

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Alexandria, VA 22313-1450 6/01/04

Date

James R. Franks - Reg. No. 42,552

Name of applicant, assignee or Registered Representative

*James R. Franks*

Signature

June 1, 2004

Date

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### **I. REAL PARTY IN INTEREST**

The real party in interest is Bayer AG.

### **II. RELATED APPEALS AND INTERFERENCES**

There are no other related appeals or interferences known to Appellants, Appellants' legal representative, or Appellants' assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

### **III. STATUS OF THE CLAIMS**

Claims Pending: 1, 2, 4-24, 26 and 27.

Claims Canceled: None

Claims Allowed: None

Claims Withdrawn  
from Consideration: None

Claims Appealed: 1, 2, 4-24, 26 and 27.

### **IV. STATUS OF AMENDMENTS**

No amendment has been filed subsequent to the outstanding final rejection.

## **V. SUMMARY OF THE INVENTION**

The present invention is directed to a polycarbonate composition comprising:

- (A) an aromatic polycarbonate and/or polyester-carbonate;
- (B) a graft polymer; and
- (C) 1 to 3 %, relative to the weight of the composition, of a copolymer of styrene and at least one monomer containing at least one carboxyl group, the copolymer having a weight average molecular weight,  $M_w$ , equal to or greater than 10,500 g/mol.

## **VI. ISSUES**

(I) Whether any of Claims 1, 2 and 4-18 are unpatentable under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 5,910,538 (**Padwa et al**).

(II) Whether any of Claims 19-24, 26 and 27 are unpatentable under 35 U.S.C. §103(a) as being obvious over United States Patent No. 6,296,908 B1 (**Reihs et al**) in view of Padwa et al.

## **VII. GROUPING OF CLAIMS**

Claims 1, 2, 4-24, 26 and 27 are appealed together.

## VIII. ARGUMENTS

### (I) CLAIMS 1, 2 and 4-18 ARE NOT ANTICIPATED BY PADWA ET AL.

The Examiner has taken the position that, under 35 U.S.C. §102(b), Claims 1, 2 and 4-18 are anticipated by Padwa et al. Appellants respectfully disagree with regard to Claims 1, 2 and 4-18.

Padwa et al discloses a thermoplastic molding composition that includes an aromatic polycarbonate resin (A), a vinyl copolymer (B), a graft polymer (C) and a compatibilizer (D) (column 1, line 32 through column 2, line 29). The vinyl copolymer (B) is disclosed by Padwa et al as being present in the composition in an amount of 4.5 to 70 pbw, 5 to 60 pbw or 10 to 50 pbw (column 1, lines 50-51).

In the paragraph bridging pages 2 and 3 of the Office Action of 7 January 2004, the Examiner has taken the perplexing and incorrect position that Padwa et al discloses their thermoplastic molding composition as containing at least 2.5 parts by weight (pbw) of vinyl copolymer (B). Padwa et al disclose their molding composition as containing at least 4.5 pbw of vinyl copolymer (B), and no less thereof. Vinyl copolymer (B) of Padwa et al is prepared from the polymerization of monomer (B.1) **and** monomer (B.2). See column 1, lines 31-41, and in particular column 1, lines 49-62 of Padwa et al. In preparing vinyl polymer (B), Padwa et al react 50 to 99% of monomer (B.1) **and** 1 to 50% of monomer (B.2). As such, the sum of monomers (B.1) + (B.2), from which vinyl copolymer (B) is prepared, is always 100% (i.e., unity). Correspondingly, Padwa et al's composition contains at least 4.5 pbw (4.5 pbw x 100 wt%) of vinyl polymer (B). It is respectfully submitted that the Examiner has misinterpreted and mischaracterized the disclosure of Padwa et al.

Appellants' polycarbonate composition contains 1 to 3 percent by weight, based on the weight of the composition, of copolymer (C), which is prepared from styrene and at least one monomer containing at least one carboxyl group, and which further has a weight average molecular weight (Mw) of at least 10,500 g/mol. See Appellants' Claim 1. Padwa et al disclose their composition as containing at least 4.5 pbw (percent by weight, based on the weight of their composition) of a vinyl copolymer (B). Padwa et al do not disclose a thermoplastic molding composition

that contains 1 to 3 percent by weight, based on the weight of the composition, of a vinyl copolymer, which is prepared from styrene and at least one monomer containing at least one carboxyl group, and which further has a weight average molecular weight (Mw) of at least 10,500 g/mol.

In light of the preceding remarks, Appellants' Claims 1, 2 and 4-18 are deemed to be unanticipated by and patentable over Padwa et al.

(II) CLAIMS 19-24, 26 AND 27 ARE NOT RENDERED OBVIOUS BY REIHS ET AL IN VIEW OF PADWA ET AL.

The Examiner has taken the position that, under 35 U.S.C. §103(A), Claims 19-24, 26 and 27 are unpatentable over Reihs et al in view of Padwa et al. Appellants respectfully disagree with regard to claims 19-24, 26 and 27.

Reihs et al disclose a composite material that includes at least one composite layer of a specific polyurethane, and a second composite layer bonded to the polyurethane layer of a thermoplastic material, such as polycarbonate (abstract, and column 7, lines 6-15).

Padwa et al has been discussed previously herein, and discloses a thermoplastic molding composition that includes an aromatic polycarbonate resin (A), a vinyl copolymer (B), a graft polymer (C) and a compatibilizer (D) (column 1, line 32 through column 2, line 29). The vinyl copolymer (B) is disclosed by Padwa et al as being present in the composition in an amount of 4.5 to 70 pbw, 5 to 60 pbw or 10 to 50 pbw (column 1, lines 50-51).

Reihs et al and Padwa et al, either alone or in combination, do not disclose, teach or suggest the multi-layered composite of Appellants' present claims which includes a polycarbonate composition containing 1 to 3 percent by weight of (C) a copolymer of styrene and at least one monomer containing at least one carboxyl group, the copolymer having a weight average molecular weight, Mw, equal to or greater than 10,500 g/mol. As such, even if Reihs et al and Padwa et al were combined as suggested by the Examiner, Appellants' presently claimed multi-layered composite would not result from such a combination.

Further, Neither Reihs et al nor Padwa et al disclose, teach or suggest the exceptional inter-layer adhesive properties of the multi-layered composites of Appellants' claims. Attention is directed to the examples at pages 35-38 of Appellants' specification, which demonstrate the greatly improved adhesion between the polycarbonate and polyurethane layers that results when the polycarbonate layer contains 2 percent by weight of a styrene / maleic anhydride copolymer. See example 1, Table 1, page 36; and Table 2, page 37 of Appellants' specification. As such, neither Reihs et al nor Padwa et al provide the requisite motivation that would lead one of ordinary skill in the art to combine or otherwise modify their respective disclosures.

On page 3 of the Office Action of 7 January 2004 (second full paragraph), the Examiner incorrectly contends that Padwa et al anticipates Appellants' claimed thermoplastic composition. As discussed previously herein, Padwa et al disclose their molding composition as containing at least 4.5 pbw of vinyl copolymer (B), and no less thereof. The thermoplastic composition of Appellants' claims contains 1 to 3 percent by weight of a copolymer (C), as described previously herein. Accordingly, Padwa et al does not anticipate Appellants' thermoplastic composition. As such, the inter-layer adhesive properties of the multi-layered composites of Appellants' claims are not inherently disclosed or embodied by Padwa et al.

Appellants submit that the rejection of Claims 23-25 as being unpatentable over JP 07-268207 (**Masuda**), which is recited in the paragraph bridging pages 5 and 6 of the Office Action of 9 July 2003, is made no less ambiguous by the Examiner's further comments in the paragraph bridging pages 3 and 4 of the Final Rejection of 7 January 2004. It is not clear what combination of references the Examiner is relying on in putting forth this rejection. While not intending to make any admissions, and for purposes of expediency and advancing the present case to an early allowance, Appellants will here address this rejection of Claims 23-25 as being obvious over Reihs et al in view of Padwa et al and further in view of Masuda.

Masuda discloses a laminate of a polyurethane layer and a polyvinylchloride layer which is used as an automotive interior material (English language abstract). Masuda does not disclose a laminate that includes a polycarbonate layer. Reihs et al and Padwa et al have been discussed previously herein. Reihs et al does not

disclose or suggest laminates that include a polyvinylchloride layer. Padwa et al does not disclose laminates that include either a polyurethane layer or a polyvinylchloride layer. As such, the cited references do not provide the requisite motivation to combine or otherwise modify their respective disclosures.

As the Court of Appeals for the Federal Circuit has stated, there are three possible sources for motivation to combine references in a manner that would render claims obvious. These are (1) the nature of the problem to be solved, (2) the teaching of the prior art, and (3) the knowledge of persons of ordinary skill in the art, *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1458 (Fed. Cir. 1998). The nature of the problem to be solved and the knowledge of persons of ordinary skill in the art are not present here and have not been relied upon in the rejection. As for the teaching of the prior art, the above discussion has established that none of the references relied upon in the rejection provide the requisite teaching, and certainly do not provide the motivation or suggestion to combine that is required by Court decisions.


Even if Reihs et al, Padwa et al and Masuda were combined, the multi-layered composite of Appellants' claims would not result from such combination. Reihs et al, Padwa et al and Masuda, either alone or in any combination do not disclose, teach or suggest the multi-layered composite of Appellants' present claims which includes a polycarbonate layer that contains 1 to 3 percent by weight of (C) a copolymer of styrene and at least one monomer containing at least one carboxyl group, the copolymer having a weight average molecular weight, Mw, equal to or greater than 10,500 g/mol.

In light of the preceding remarks, Appellants' Claims 19-24, 26 and 27 are deemed to be unobvious and patentable over Reihs et al in view of Padwa et al (or Reihs et al in view of Padwa et al and further in view of Masuda).



In view of the remarks herein, Appellants' respectfully submit that: (i) their claimed polycarbonate composition is not anticipated by Padwa et al; and (ii) their claimed multi-layered composite is not described, taught or fairly suggested by Reihs et al in view of Padwa et al (or Reihs et al in view of Padwa et al and further in view of Masuda). Thus, Appellants respectfully request that the Board of Appeals reverse the decision of the Examiner, and remand the application for allowance of Claims 1, 2, 4-24, 26 and 27 and issuance of a patent.

Respectfully submitted,

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**APPENDIX**  
**CLAIMS ON APPEAL**

1. A polycarbonate composition comprising:
  - (A) an aromatic polycarbonate and/or polyester-carbonate;
  - (B) a graft polymer; and
  - (C) 1 to 3 %, relative to the weight of the composition, of a copolymer of styrene and at least one monomer containing at least one carboxyl group, the copolymer having a weight average molecular weight,  $M_w$ , equal to or greater than 10,500 g/mol.
2. The composition according to Claim 1, wherein (C) is present in an amount of 1.5 to 2.5 % relative to the weight of the composition.
4. The composition according to Claim 1 wherein (C) is a copolymer of styrene and maleic anhydride.
5. The composition according to Claim 4, wherein (C) comprises maleic anhydride in an amount of 1 to 40 % relative to the weight of (C).
6. The composition according to Claim 1 wherein the weight average molecular weight of (C) is 10,500 to 300,000.
7. The composition according to Claim 1 wherein (A) is present in an amount of 5 to 98 % relative to the weight of the composition.
8. The composition according to Claim 1 wherein (A) is present in an amount of 4 to 75 % relative to the weight of the composition.
9. The composition according to Claim 1 wherein (B) is a graft of B.1) 5 to 95 wt.% of one or more vinyl monomers on B.2) 95 to 5 wt.% of one or more graft bases having glass transition temperatures lower than 10°C.

10. The composition according to Claim 1 wherein (B) is present in an amount of 1 to 94 % relative to the weight of the composition.

11. The composition according to Claim 1 wherein (B) is present in an amount of 5 to 60 % relative to the weight of the composition.

12. The composition according to Claim 1 further comprising component (D) selected from at least one of thermoplastic vinyl (co)polymer and polyalkylene terephthalate.

13. The composition according to Claim 12 wherein D is present in an amount of 0 to 25 % relative to the weight of the composition.

14. The composition according to Claim 1 further comprising (E) at least one additive selected from the group consisting of flameproofing agents, fluorinated polyolefins and inorganic particles.

15. The composition of Claim 14 wherein inorganic particles are selected from the group consisting of talc, mica, wollastonite, quartz, and titanium dioxide.

16. A process for the preparation of the composition of Claim 1 comprising mixing (A), (B) and (C) and subjecting the resulting mixture to melt compounding and melt extrusion at temperatures of 200 to 300°C in conventional units.

17. A method of using the composition of Claim 1 comprising producing a molded article.

18. The molded article prepared by the method of Claim 17.

19. A multi-layered composite comprising at least one first layer that includes the composition of Claim 1 and a second layer that comprises

polyurethane.

20. The composite of Claim 19, wherein said first layer is bonded directly to said second layer.

21. The composite of Claim 20 wherein said second layer is a polyurethane foam.

22. The composite of Claim 20 wherein said second layer is a solid polyurethane.

23. The composite of Claim 20 further comprising an additional polymeric layer, said additional polymeric layer being bonded directly to said second layer.

24. The composite of Claim 23, wherein the additional polymeric layer comprises polyvinyl chloride.

26. A multi-layered composite comprising
- (i) at least one first layer that includes a polycarbonate composition comprising,
    - (A) an aromatic polycarbonate and/or polyester-carbonate;
    - (B) a graft polymer; and
    - (C) 0.4 to 7 %, relative to the weight of the composition, of a copolymer of styrene and at least one monomer containing at least one carboxyl group, the copolymer having a weight average molecular weight,  $M_w$ , equal to or greater than 10,500 g/mol; and
  - (ii) a second layer comprising polyurethane.

27. The multi-layered composite of Claim 26 wherein said polycarbonate composition contains said copolymer (C) in an amount of 1.5 to 2.5 %, relative to the weight of said composition.